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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/777,661	02/07/2001	Makoto Tsuruta	Q62661	9239

7590 08/25/2003

SUGHRUE, MION, ZINN, MACPEAK & SEAS
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037

EXAMINER
FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
1733	

DATE MAILED: 08/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/777,661	TSURUTA, MAKOTO	
	Examiner	Art Unit	
	Justin R Fischer	1733	

-- The MAILING DATE of this communication appears on th cover she t with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 June 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5 and 10* is/are rejected.

7)☒ Claim(s) *4 and 6-9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 February 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 5, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cluzel (US 5,996,662, of record) and further in view of Takahashi (JP 2000-16019, newly cited), Mechanics of Pneumatic Tires (of record), and either one of Boileau (US 3,406,733, of record) or Dudek (US 4,044,811, of record). As set forth in Paper Number 8, Paragraph 5 and best depicted in Figure 2, Cluzel discloses a pneumatic tire construction comprising a carcass extending between a pair of bead portions and a belt structure arranged on an outside of said carcass in the radial direction, such that said belt structure is formed of a radially inner belt reinforcement (20) and a radially outer belt (21, 22), as defined by the claimed invention. In this instance, the belt reinforcement is composed of one belt reinforcing layer having circumferential reinforcing elements and the "belt" is composed of a pair of crossed belt layers containing reinforcing elements that are inclined with respect to the equatorial plane of the tire (Column 2, Lines 5-15). Furthermore, Cluzel incorporates a restraining rubber (cushion rubber 5) having a width that "covers the end of the ply 20 (belt reinforcing layer). Although Cluzel fails to quantify the axial extension or width of the restraining rubber beyond the belt reinforcing layer, one of ordinary skill in the art at the time of the

invention would have found it obvious to extend the restraining rubber at least 4 millimeters since such a construction results in improved stress resistance and ultimately better tire durability, as shown for example by Takahashi (Paragraphs 17 and 22), it being noted that Cluzel and Takahashi are both directed to heavy-duty tire constructions. Regarding the properties of the restraining rubber, Cluzel describes a composition with a "high" modulus of extension or a secant modulus at 10% relative elongation of between 10 and 20 MPa (Column 2, Lines 25-32 and Lines 40-45). While Cluzel fails to compare the restraining rubber to the belt topping rubber, it is well known in the tire industry, as shown for example by Mechanics of Pneumatic Tires (Table 10.3), that steel belt topping rubbers conventionally have a modulus that is approximately 5.1 MPa, which is significantly smaller than the modulus of the restraining rubber in Cluzel. Thus, Cluzel in view of Mechanics of Pneumatic Tires suggests a pneumatic tire construction in which the restraining rubber has a significantly greater modulus as compared to that of the belt topping rubber. Although this relationship compares the modulus and not the hardness of the respective rubbers, it is generally recognized in the rubber industry and the tire industry that the modulus and hardness have a positive relationship, such that a rubber composition having a greater modulus has a greater hardness, as evidenced by Boileau (Column 2, Lines 3-6) or Dudek (Column 5, Lines 60-68). Therefore, one of ordinary skill in the art at the time of the invention would have found it obvious to the tire of Cluzel in which the restraining rubber is harder than the belt topping rubber.

Regarding the axial extension of the restraining rubber, Takahashi recognizes that a large axial extension results in improved stress resistance and ultimately better tire durability (Paragraph 17). In particular, Takahashi suggests that the restraining rubber should have an axial extension beyond the end of the belt ply equal to between 10 and 30 times the cord diameter of the associated ply. Based on the type of tire described by Cluzel (heavy-duty) and the description of the reinforcing elements as metal cables made of steel, one of ordinary skill in the art at the time of the invention would have readily appreciated and expected the reinforcing elements of the belt reinforcing layer to be relatively large (on the order of 1 mm), which in turn suggests an axial extension or width between approximately 30 and 50 millimeters. It is noted that the two examples in Takahashi disclose an axial extension beyond the end of the ply of 50 mm and 18 mm, which are significantly greater than the lower limit of 4 millimeters required by the claimed invention.

With respect to claim 2, applicant requires a cushion rubber hardness between 65 and 85 JIS. As previously stated, belt topping rubbers commonly have a JIS hardness of 75, which falls directly in the middle of the range of the claimed invention. In view of the "high" modulus description by Cluzel, one of ordinary skill in the art at the time of the invention would have expected the hardness of the restraining rubber in Cluzel to be grater than 75 JIS, as it is generally recognized that modulus will increase with hardness. Furthermore, Cluzel gives a broad range of values for the modulus (10-20 MPa), such that one of ordinary skill in the art at the time of the invention would have readily appreciated a plurality of disclosed embodiments in which the hardness of the

restraining rubber in Cluzel is between 75 and 85 JIS, depending on the desired belt construction.

Regarding claim 3, Figure 2 of Cluzel depicts the gauge of the cushion rubber as being greater than the thickness of the belt reinforcement at the widthwise outer end of the belt reinforcement.

With respect to claim 5, the cushion rubber of Cluzel extends inward in the widthwise direction so as to cover the widthwise outer end part of the belt reinforcement.

Regarding claim 10, the axial extension of width of the restraining rubber is measured in accordance to the claimed invention.

Allowable Subject Matter

3. Claims 4 and 6-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims as previously set forth in paper Number 8, Paragraph 6.

Response to Arguments

4. In light of the Amendment submitted on June 12, 2003, the rejection of claims 1 and 2 with Iwata have been withdrawn. In particular, the restraining rubber or cushion rubber of Iwata is arranged between the belt structure and the carcass structure and fails to exist in a direction directly adjacent the widthwise outer end of the widest width belt reinforcing layer. However, the rejection of claims 1-3 and 5 with Cluzel is maintained since Cluzel expressly depicts and describes the claimed arrangement and

in view of Takahashi, one of ordinary skill in the art at the time of the invention would have readily appreciated an axial extension or width of the restraining rubber of at least 4 millimeters, as set forth above.

It is additionally noted that the results of Tables 1 and 2 do not constitute a conclusive showing of "unexpected results" since Takahashi equally recognizes that a large axial extension or width (at least 4 mm) for the restraining rubber provides improved stress/strain resistance and tire durability.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(703) 605-4397**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Justin Fischer

August 20, 2003

Michael W. Ball
Supervisory Patent Examiner
Technology Center 1700